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EXAMINER	
FISCHER, MARK L	

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2627	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/563,457	OAKLEY, WILLIAM S.	
	Examiner	Art Unit	
	Mark L. Fischer	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 October 2009 and 22 December 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6 and 12-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6 and 12-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 December 2009* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission of Claims and Remarks filed on October 6, 2009 and Drawings filed on December 22, 2009 have been entered.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: Figure 1, element 195. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claim 18 is objected to because of the following informalities: **Claim 18, line 2:** "e-beam disk drive head" should be --disk drive e-beam head-- for consistency of terminology. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. **Claims 1-20 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

Claim 1, line 23 recites the limitation of "a recording medium" which is indefinite in light of the limitation "a recording medium" in line 14 because it is not clear whether or not the "recording medium" of line 23 is the same recording medium as that of line 14.

Claim 6 recites the limitation of "a disk" in **line 1** and also recites the limitation of "a recording medium" in **line 20**. The specification seems to suggest that the "disk" and the "recording medium" are same thing, and if so, a single term should be used instead of two.

Claim 6, line 10 recites the limitation of "a read head" which is indefinite in light of the limitation "a read head" in line 4 because it is not clear whether or not the "read head" of line 10 is the same read head as that of line 4.

Claim 14 recites the limitation "the actuator" in **line 2**. There is insufficient antecedent basis for this limitation in the claim.

Claim 15, line 15 recites the limitation of "a recording medium" which is indefinite in light of the limitation "a recording medium" in claim 1, line 14 because it is not clear whether or not the "recording medium" of claim 15, line 15 is the same recording medium as that of claim 1, line 14.

Claim 20, line 3 recites the limitation of "a disk" and **claim 17, line 13** recites the limitation of "a recording medium". The specification seems to suggest that the "disk" and the "recording medium" are same thing, and if so, a single term should be used instead of two.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. **Claims 1-5, 15-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crewe (US 4760567) in view of Jin (US 7068582 B2) further in view of Ikeda et al. (US 4817053) hereinafter Ikeda furthermore in view of Hieda et al. (US 6977108) hereinafter Hieda.**

Regarding claim 1, Crewe discloses an apparatus, comprising:

an assembly (see Figs. 2 and 3) that includes

a base (38),

a filament (58) mounted on the base (38),

a tip (60) on the filament (58),

a housing (72, 74, 76, and 86 combined) mounted on the base,

a gating electrode (element 66 induces electron emission; col. 10, lines 52-61) mounted on the housing,

a focus electrode (element 68; col. 10, lines 52-61) mounted on the housing,

a tracking electrode (element 84; col. 11, lines 56-64) mounted on the housing,

and

an acceleration electrode (element 70 creates accelerating electrical potential; col. 11, lines 1-8) mounted on the housing,

and

an electronic controller (Fig. 1: element 27) coupled to the assembly and thus to the tip to direct emissions of the tip (col. 8, lines 11-19).

The apparatus of Crewe and the claimed apparatus differ in that Crewe teaches a filament mounted on a base, a tip on the filament, and an electronic controller coupled to the tip to direct emissions of the tip, whereas the claimed invention claims a substrate mounted on the base, a carbon nanotube on the substrate, and an electronic controller coupled to the carbon nanotube to direct emissions of the carbon nanotube.

However, in a similar field of the art directed towards electron emission for data storage/retrieval, Jin discloses a substrate (Fig. 2: see upside-down-U-shaped platform on which

21 is mounted); and a carbon nanotube (Fig. 2: element 21; also see col. 4, lines 35-36) on the substrate.

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to substitute the tip and filament of the apparatus of Crewe with the carbon nanotube and substrate of Jin such that the substrate of Jin is mounted on the base (38) of Crewe, and to direct emissions of the carbon nanotube of Jin using the electronic controller of Jin.

The rationale is as follows: One of ordinary skill in the art at the time of the applicant's invention would have been motivated to use another well-known means for producing an electron beam.

In addition, the modified apparatus of Crewe in view of Jin does not expressly disclose a detection electrode mounted on the housing, the detection electrode to detect electrons reflected from a recording medium.

However, in a similar field of endeavor, Ikeda discloses a detector (Fig. 2, element 8) mounted on a housing (5), the detection electrode to detect electrons reflected (7) from a recording medium (col. 4, lines 18-40).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to incorporate and mount a detection electrode as taught by Ikeda into the apparatus of Crewe.

The rationale is as follows: One of ordinary skill in the art at the time of the applicant's invention would have been motivated to be able detect, and thus read information from a recording medium (col. 4, lines 18-40).

Further, while the modified apparatus of Crewe, Jin, and Ikeda teaches a carbon nanotube assembly, the modified apparatus of Crew, Jin, and Ikeda does not expressly disclose an array of carbon nanotubes, the array including a first carbon nanotube assembly and a second carbon nanotube assembly.

However, in the field of endeavor of recording on a rotating medium (Hieda - Fig. 25: element 201; col. 27, lines 20-29), Hieda discloses an array of heads (Fig. 26, elements 231-233), the array including a first head and a second head (elements 231-233 include two heads) (col. 27, lines 30-33).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to implement multiple versions of the carbon nanotube assembly (i.e. at least a first carbon nanotube assembly and a second carbon nanotube assembly) of Crewe, Jin, and Ikeda into an array of heads, thus also inherently forming an array of carbon nanotubes.

The rationale is as follows: Hieda already discloses a well-known array implementation of heads in the art of recording on a rotating medium (Ikeda - Figs. 25-26). Therefore, one of ordinary skill in the art at the time of the applicant's invention would have been motivated to try the array implementation of heads using heads of a different type (i.e. the type taught by Crewe, Jin, and Ikeda) in order to track and position read and write heads while confirming instantly write signals (Ikeda - col. 27, lines 43-49).

Regarding claim 2, with respect to the modified apparatus of Crewe, Jin, Ikeda, and Hieda set forth in the rejection of claim 1, Hieda discloses that the array of heads includes a read head (231) and a tracking head (232).

Crewe, Jin, and Ikeda discloses that the heads use carbon nanotubes (see rejection of claim 1) therefore making the read head (231) and tracking head (232) of Hieda to include a read tube and a tracking tube when Crewe, Jin, and Ikeda are combined with Hieda using the same motivation and rationale for the array implementation of carbon nanotubes found in the rejection of claim 1 (also see Ikeda - col. 27, lines 43-49).

Regarding claim 3, with respect to the modified apparatus of Crewe, Jin, Ikeda, and Hieda set forth in the rejection of claim 1, Hieda discloses that the array of heads includes a read head (231) and a write head (233).

Crewe, Jin, and Ikeda discloses that the heads use carbon nanotubes (see rejection of claim 1) therefore making the read head (231) and write head (233) of Hieda to include a read tube and a write tube when Crewe, Jin, and Ikeda are combined with Hieda using the same motivation and rationale for the array implementation of carbon nanotubes found in the rejection of claim 1 (also see Ikeda - col. 27, lines 43-49).

Regarding claim 4, with respect to the modified apparatus of Crewe, Jin, Ikeda, and Hieda set forth in the rejection of claim 1, Hieda discloses that the array of heads includes a write head (233) and a tracking head (232).

Crewe, Jin, and Ikeda discloses that the heads use carbon nanotubes (see rejection of claim 1) therefore making the write head (233) and tracking head (232) of Hieda to include a write tube and a tracking tube when Crewe, Jin, and Ikeda are combined with Hieda using the same motivation and rationale for the array implementation of carbon nanotubes found in the rejection of claim 1 (also see Ikeda - col. 27, lines 43-49).

Regarding claim 5, with respect to the modified apparatus of Crewe, Jin, Ikeda, and Hieda set forth in the rejection of claim 1, Crewe discloses that the electronic controller (27) controls electrons within heads that emit electrons (col. 8, lines 11-19), where the electrons are emitted by carbon nanotubes as taught by Jin (Jin- col. 4, lines 32-54) when Crewe is combined with Jin using the same motivation and rationale found in the rejection of claim 1.

Regarding claim 15, with respect to the modified apparatus of Crewe, Jin, Ikeda, and Hieda set forth in the rejection of claim 1, the combined teachings of Crewe, Jin, Ikeda, and Hieda along with the motivation and rationale set forth in the rejection of claim 1 already teach the third carbon nanotube assembly of claim 15 because heads 231-233 of Hieda are at least three heads.

Regarding claim 16, with respect to the modified apparatus of Crewe, Jin, Ikeda, and Hieda set forth in the rejection of claim 15, Hieda discloses that the array of heads includes a read head (231), a write head (233) and a tracking head (232).

Crewe, Jin, and Ikeda discloses that the heads use carbon nanotubes (see rejection of claim 1) therefore making the read head (231), the write head (233), and the tracking head (232) of Hieda to include a read tube, a write tube and a tracking tube when Crewe, Jin, and Ikeda are combined with Hieda using the same motivation and rationale for the array implementation of carbon nanotubes found in the rejection of claim 1 (also see Ikeda - col. 27, lines 43-49).

Claim 17 recites limitations that are similar to limitations found in claim 1. Therefore, the similar limitations of claim 17 are rejected on the same grounds and using the same motivations and rationale as are applied to the rejection of claim 1.

Additionally, Hieda discloses a disk drive head (Fig. 26) including a read head (231) and a write head (233), wherein the read head and the write head are offset responsive to signals from

the detection of the read head (Col. 14, lines 21-28). Crewe also discloses that a tracking electrode (84) is an equivalent for fine positioning (col. 11, lines 56-64).

The motivation and rationale for using these additional teachings of Crewe and Hieda are still the same as those applied to the rejection of claim 1.

Claim 18 recites limitations that are found in claim 1. Therefore, the similar limitations of claim 18 are rejected on the same grounds and using the same motivations and rationale as are applied to the rejection of claim 1.

Claim 19 recites limitations that are found in claim 15. Therefore, the similar limitations of claim 19 are rejected on the same grounds and using the same motivations and rationale as are applied to the rejection of claim 15.

Regarding claim 20, with respect to the modified apparatus of Crewe, Jin, Ikeda, and Hieda set forth in the rejection of claim 17, Crewe discloses that the head is mounted on an actuator positioned to scan across a rotating surface of a disk (Fig. 1; col. 7, line 48 to col. 8, line 10).

8. **Claims 6, 12, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crewe in view of Jin further in view of Ikeda furthermore in view of Hamada et al. (US 6738218 B1) hereinafter Hamada.**

Regarding claim 6, Crewe discloses a method of operating a head with a disk (13) having tracks (42), comprising:

locating the head at a desired track at a rough precision (col. 11, lines 56-64: "gross positioning");

adjusting a target of the head responsive to the feeding back (col. 11, lines 56-64: "fine positioning");

wherein:

the head includes a read head (20), the read head including:

a base (38),

a filament (58) mounted on the base (38),

a tip (60) on the filament (58),

a housing (72, 74, 76, and 86 combined) mounted on the base,

a gating electrode (element 66 induces electron emission; col. 10, lines 52-61) mounted on the housing,

a focus electrode (element 68; col. 10, lines 52-61) mounted on the housing,

a tracking electrode (element 84; col. 11, lines 56-64) mounted on the housing,

an acceleration electrode (element 70 creates accelerating electrical potential; col. 11, lines 1-8) mounted on the housing.

The apparatus of Crewe and the claimed apparatus differ in that Crewe teaches a filament mounted on a base and a tip on the filament whereas the claimed invention claims a substrate mounted on the base and a carbon nanotube on the substrate.

However, in a similar field of the art directed towards electron emission for data storage/retrieval, Jin discloses a substrate (Fig. 2: see upside-down-U-shaped platform on which 21 is mounted); and a carbon nanotube (Fig. 2: element 21; also see col. 4, lines 35-36) on the substrate.

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to substitute the tip and filament of the apparatus of Crewe with the carbon nanotube and substrate of Jin such that the substrate of Jin is mounted on the base (38) of Crewe.

The rationale is as follows: One of ordinary skill in the art at the time of the applicant's invention would have been motivated to use another well-known means for producing an electron beam.

In addition, the modified apparatus of Crewe in view of Jin does not expressly disclose a detection electrode mounted on the housing, the detection electrode to detect electrons reflected from a recording medium.

However, in a similar field of endeavor, Ikeda discloses a detector (Fig. 2, element 8) mounted on a housing (5), the detection electrode to detect electrons reflected (7) from a recording medium (col. 4, lines 18-40).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to incorporate and mount a detection electrode as taught by Ikeda into the apparatus of Crewe, thus allowing the apparatus of Crewe to be a read head.

The rationale is as follows: One of ordinary skill in the art at the time of the applicant's invention would have been motivated to be able to detect, and thus read information from a recording medium (col. 4, lines 18-40).

Further, while the modified apparatus of Crewe, Jin, and Ikeda teaches

locating the carbon nanotube head at a desired track at a rough precision (Crewe - col. 11, lines 56-64: "gross positioning") and adjusting a target of the carbon nanotube head responsive to

the feeding back (Crewe - col. 11, lines 56-64: "fine positioning"), Crewe, Jin, and Ikeda does not expressly disclose in more detail steps of

determining an offset for a read head based on the desired track;

tracking the track through the read head using the offset;

feeding back an indication of a location of the desired track at a fine precision;

adjusting the offset responsive to the feeding back;

and wherein:

tracking occurs based on signals received from the detection electrode;

and

adjusting the target occurs through operation of the tracking electrode.

However, in the field of endeavor of recording on a rotating medium having tracks (Hamada - col. 3, lines 16-29), Hamada discloses a method of operating a head with a disk having tracks, comprising:

locating the head at a desired track at a rough precision (col. 3, lines 27-29);

determining an offset for a read head based on the desired track (col. 3, lines 34-38: "calculates a position deviation signal");

tracking the track through the read head using the offset (col. 3, lines 59-62: "controls the position deviation signal 32 to be zero" and col. 4, lines 5-8: "thrust proportional to the current to move and position the head support mechanism");

feeding back an indication of a location of the desired track at a fine precision (col. 5, lines 28-31: "feedback type");

adjusting the offset responsive to the feeding back (col. 5, lines 28-31: "cause the position deviation signal 32 to follow up the target position signal 76");

adjusting a target of the head responsive to the feeding back (col. 5, lines 28-31: "cause the position deviation signal 32 to follow up the target position signal 76");

and wherein:

tracking occurs based on signals received from a detection electrode (10) (col. 3, lines 30-38);

and

adjusting the target occurs through operation of a tracking electrode (col. 3, lines 16-38 and col. 4, lines 1-8).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to implement the more detailed steps for head positioning, as taught by Hamada, into the less detailed steps of Crewe, Jin, and Ikeda.

The rationale is as follows: One of ordinary skill in the art at the time of the applicant's invention would have been motivated to implement more precise positioning and settling control of the head of Crewe, Jin, and Ikeda on a track (Hamada - col. 2, lines 11-35).

Regarding claim 12, with respect to the modified method of Crewe, Jin, Ikeda, and Hamada set forth in the rejection of claim 6, Hamada discloses that the locating the head at a desired track at a rough precision occurs through positioning an actuator to which the head is attached (col. 3, lines 23-25).

Crewe, Jin, and Ikeda discloses that the head uses a carbon nanotube (see rejection of claim 12) therefore making the head of Hamada a carbon nanotube head when Crewe, Jin, and

Ikeda are combined with Hamada using the same motivation and rationale for using the positioning method of Hamada set forth in the rejection of claim 6.

Regarding claim 13, with respect to the modified method of Crewe, Jin, Ikeda, and Hamada set forth in the rejection of claim 6, Hamada discloses determining an offset for a read head based on the desired track occurs through operation of a controller (position controller), the controller coupled to the head (Col. 3, lines 55-62).

Crewe, Jin, and Ikeda discloses that the head uses a carbon nanotube (see rejection of claim 12) therefore making the head of Hamada a carbon nanotube head when Crewe, Jin, and Ikeda are combined with Hamada using the same motivation and rationale for using the positioning method of Hamada set forth in the rejection of claim 6.

9. **Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Crewe in view of Jin further in view of Ikeda furthermore in view of Hamada furthermore in view of Teo (U.S. Pub. No. 2004/0080859 A1).**

Regarding claim 14, with respect to the modified method of Crewe, Jin, Ikeda, and Hamada set forth in the rejection of claim 13, Crewe, Jin, Ikeda, and Hamada does not expressly disclose that the controller determines the offset responsive to an angle of the actuator.

However, in a similar field of endeavor, Teo discloses determining an offset responsive to an angle of an actuator (¶ 0039).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to determine offset of Crewe, Jin, Ikeda, and Hamada responsive to an angle of the actuator as taught by Teo.

The rationale is as follows: One of ordinary skill in the art at the time of the applicant's invention would have been motivated to accurately position a head on a track regardless of the actuator angle (Teo - ¶ 0008).

Response to Arguments

10. Applicant's arguments filed October 6, 2009 have been fully considered but they are not persuasive.

(a) Applicant's arguments on Page 9: line 20 to Page 10: line 15, Page 11: lines 1-10, Page 11: line18 to Page 12: line 1, and Page 12: lines 6-8 have been considered but are moot in view of the new ground(s) of rejection.

(b) Applicant argues (Page 10, lines 16-23) that "Hieda is primarily concerned with magnetic recording" and "one would not combine Hieda with the electron gun of Crewe." However, the media of Crewe is a rotating media with tracks (Crewe - col. 7, lines 48-54) similar to that of Hieda (Hieda - col. 27, lines 20-29). The array of heads taught by Hieda and used for the rejection of claims 1 and 17 does not have limiting functions that require that the array of heads must be used only for magnetic recording. It would be obvious to try an array of heads used on a recording medium with tracks on any other kind of a recording medium with tracks using appropriate heads for use with the other kind of recording medium.

(c) Applicant argues (Page 11, lines 11-17 that "Crewe was filed in 1986 and issued in 1988" and "Hieda was filed in 2002 and issued in 2005" which "militates against a finding

of obviousness of the combination." However, the range of time over which the prior art ranges is not relevant to whether or not the prior art can be combinable.

(d) Applicant argues (Page 12, lines 1-5) that "Hamada concerns a magnetic disk system" and that "Hamada suggests that controlling magnetic heads is appropriate, rather than using carbon nanotubes and electron beams as used in the other references." However, the media of Hamada is a rotating media with tracks (Hamada - col. 3, lines 16-29) similar to that of Crewe (Crewe - col. 7, lines 48-54). Whether or not the media of Crewe is magnetic is not relevant because Hamada does not have limiting functions that require that the positioning method must be used only for magnetic disk system. It would be obvious to try a positioning method used on a recording medium with tracks on any other kind of a recording medium with tracks using appropriate heads for use with the other kind of recording medium.

(e) Applicant argues (Page 12, lines 9-16) that "Teo clearly relates to rotating media" and "[t]hus, it is not appropriate to combine Teo with Crewe …." However, Teo would be combinable for the same reasons mentioned by the examiner in item (d).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark L. Fischer whose telephone number is (571) 270-3549. The examiner can normally be reached on Monday-Friday from 9:00AM to 6:30PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa Thi Nguyen can be reached on (571) 272-7579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/TAN Xuan DINH/
Primary Examiner, Art Unit 2627
April 5, 2010

/Mark L Fischer/
Examiner, Art Unit 2627